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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BRITT, CYNTHIA H	
ART UNIT	**PAPER NUMBER**
2133	

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/783,333	PARK ET AL.	
	Examiner	Art Unit	
	Cynthia Britt	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-10 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-10 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☑ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 15 February 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9,10 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claims 1-10 are presented for examination.

Specification

The incorporation of essential material in the specification by reference to a foreign application (Korean Patent Application No.00-24209) or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-10 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility.

It is unclear to the examiner how or why an error protection code would be used to protect an error; therefore the examiner fails to discern any purpose or utility for protecting an error.

Claims 1-10 are also rejected under 35 U.S.C. 112, first paragraph (see below). Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

It is unclear to the examiner how or why an error protection code would be used to protect an error; therefore the examiner fails to discern any purpose or utility for protecting an error.

In line 5 of claim 1, "adding an error protection code *for protecting an error* in the header" it is unclear to the examiner how or why the error would be protected.

For the purpose of examination the examiner will assume applicant intends to use the code to protect the data, not the error.

In line 6 of claim 3, "adding an error protection code *for protecting an error* in the header" it is unclear to the examiner how or why the error would be protected.

For the purpose of examination the examiner will assume applicant intends to use the code to protect the data, not the error.

In lines 2 and 3 of claim 7, "... an error protection code *for protecting an error* in the header information..." it is unclear to the examiner how or why the error would be protected.

For the purpose of examination the examiner will assume applicant intends to use the code to protect the data, not the error.

In line 5 of claim 9, "having an error protection code *for protecting an error* in a header information" it is unclear to the examiner how or why the error would be protected.

For the purpose of examination the examiner will assume applicant intends to use the code to protect the data, not the error.

In lines 2 and 3 of claim 10, "... an error protection code *for protecting an error* in a header information..." it is unclear to the examiner how or why the error would be protected.

For the purpose of examination the examiner will assume applicant intends to use the code to protect the data, not the error.

The dependent claims 2, 4-6, and 8, inherit the USC 112 second paragraph issues of the independent claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-10 rejected under 35 U.S.C. 103(a) as being unpatentable over Strawczynski et al. U.S. Patent No. 6,628,641.

As per claims 1,3,7,9, and 10, Strawczynski et al. substantially teach the claimed wireless packetization method and apparatus in which an improved transceiver architecture and method for detecting errors in data cells transmitted by wireless communication. It has been recognized that for a given code length there is a higher probability of detecting an error using an error detection technique than there is for determining that a detectable but non-correctable error pattern occurred using an FEC technique. Furthermore, for some applications, as long as the header is correct, there is utility in forwarding a cell with a corrupted payload. This architecture and method can be used in both point-to-point and point-to-multipoint radio units. In either system, the transmitter of a cell reconfigures the cell for transmission such that the receiving radio unit can detect errors that occur in the header with greater accuracy than conventional techniques. In particular, a reconfigured cell includes enhanced header error detection coding by including an extended header error code (EHEC). The receiving unit retrieves the reconfigured cell from the transmitted radio bit stream and detects header errors using the enhanced header error detection coding. If the receiving unit detects no header errors, various treatments can be applied. Typically, the enhanced header error detection coding is replaced by a conventional header error coding check if no further

wireless transmission is required. The system can then simply forward such a cell, relying on higher layer protocols to determine what treatment should be performed on cells with corrupted payloads. Thus, there is provided a transceiver for receiving and transmitting data cells over a wireless interface, having the following features; a block processor having a transmit path for reconfiguring cells for transmission over the wireless interface and for receiving transmitted signals and processing received reconfigured cells; the block processor includes: a transmit header processor for assembling a new header for a cell to be transmitted, including: means for extracting HEC from said cell, and means for calculating and inserting an EHEC into the cell header; a receive header processor, including: means for extracting EHEC from a received cell, means for replacing the EHEC with an HEC, and means for detecting errors in the received cell header; and means for discarding a received cell if an error in the header is detected (column 1 line 53-column 3 line 9, Figure 4, column 4 lines 45-54). Not explicitly taught in this invention, is the use of error flags. However, other aspects of the invention provide for enhanced treatments and optional features. For example, additional Forward Error Correction or error detection coding can be applied, either to cells or blocks of cells. FEC has the advantage of generally improving the radio transmissions. Either way, this additional coding can help determine the type of treatment to be applied. For example, if detectable but uncorrectable errors are detected on a particular cell, but no error is detected in the header, then the system can conclude that there is an error in the payload. This can allow systems to select between various treatments, including: forwarding the cell, forwarding the cell with a flag,

discarding the cell, and producing an indication of the error to a higher layer protocol. For groups of related cells for which the payload of every cell is necessary, special treatments can be applied to conserve bandwidth by discontinuing the forwarding and/or transmission of subsequent cells of a message once a payload error has been detected in any cell of a message. Therefore it would have been obvious to a person having ordinary skill in the art at the time this invention was made to use the system of Strawczynski et al. to send error flags indicating an error in the header. This would have been obvious as suggested (column 2 line 60 through column 2 line 9) with the discussion of using error flags in messages sent.

As per claim 2, Strawczynski et al. teaches that if detectable but uncorrectable errors are detected on a particular cell, but no error is detected in the header, then the system can conclude that there is an error in the payload. This can allow systems to select between various treatments, including: forwarding the cell, forwarding the cell with a flag, (column 2 line 60 through column 2 line 9).

As per claims 4 and 5, Strawczynski et al. teaches a method for treating errors by performing an additional operation which indicates whether there is an (uncorrectable) error in a cell as well as using, in this embodiment, the enhanced header error check on the header in order to determine whether there are errors in the header, and acting accordingly. (see FIG. 6,) Either a forward error correction (FEC) or an additional error detection step is performed on each cell. Note that this additional step can be

performed in a block, which includes a group of cells, although this adds complexity and an increased probability of discarding a good cell, and is therefor, although possible, not preferred. Each reconfigured cell is FEC encoded prior to transmission. During reception, the receive block processor performs FEC decoding. During this step, correctable errors are corrected. As part of the FEC decoding process, a determination is made as to whether there were detectable but uncorrectable error patterns. If there are no uncorrectable errors, the EHEC header error check step is performed, in order to determine whether the EHEC shows a valid header was received. If a valid header was received, then the cell is reconfigured back to conventional ATM format and forwarded, otherwise it is discarded. If there is an indication that there was an uncorrectable error in the cell, a determination is made as to whether there was a valid header received. If there was an error in the header, the cell is discarded. Various treatments can be applied depending on the nature of the payload. Treatments include forwarding the cell, forwarding the cell with a flag, discarding the cell, or producing an indication to a higher layer protocol of the error (Column 3 line 59 through column 4 line 19, column 6 line 24 through column 7 line 46, figure 1,figures 6a,b and figure 7).

As per claims 6 and 8, Strawczynski et al. teaches a method in which an error indication of data can be sent to another layer and various protocols can be used (column 3 lines 2-9 and lines 51-58).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

"*Forward Error Correction Schemes for Wireless ATM Systems*" Aikawa et al. ICC 96, Conference Record Communications, 1996., Converging Technologies for Tomorrow's Applications. Volume: 1, 23-27 June 1996 Page(s): 454 -458 vol.1

This paper teaches that wireless asynchronous transfer mode (ATM) systems have been proposed for future broadband multimedia personal communication. Forward error correction (FEC) is often used to improve the bit error rate (BER) performance of wireless transmission systems. The ATM employs header error control (HEC) to protect the ATM cell header from bit errors. Since ATM specifications have been developed for high-quality optical fiber transmission systems, the HEC has single-bit error correction capabilities. However, wireless ATM requires a more powerful FEC scheme to improve the BER performance resulting in a reduction in the transmission power and antenna size. This concatenation of wireless FEC and HEC of the ATM may affect the cell loss performance. This paper proposes an FEC scheme suitable for wireless ATM and analyzes the performance of the proposed FEC scheme.

"*Cell Discard and TDMA Synchronization Using FEC in Wireless ATM Systems*" Nakayama et al.; IEEE Journal on Selected Areas in Communications, Volume: 15 Issue: 1, Jan. 1997 Page(s): 29 –34

This paper teaches that the asynchronous transfer mode (ATM) employs header-error control (HEC) to protect the ATM cell header from bit error and/or avoid the misforwarding of ATM cells. However, wireless ATM systems require a more powerful forward-error correction (FEC) scheme to offer acceptable bit-error rate (BER) performance. This paper proposes the utilization of FEC, which makes it possible to discard ATM cells more reliably. Time-division multiple-access (TDMA) is very suitable for wireless ATM systems. In the TDMA scheme, synchronization is very important. This paper also proposes to combine FEC with unique word (UW) detection for improving TDMA synchronization characteristics.

U.S. Patent No. 6,580,711 Muto

This patent teaches A header CRC region added to the quadlet before the data field region is an error detection code of the packet header. The header CRC is the error detection code of the packet header.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Britt whose telephone number is 703-308-2391. The examiner can normally be reached on Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 703-305-9595. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Cynthia Britt
Examiner
Art Unit 2133

CB
CHB

Guy J. Lamare
for
Albert DeCady
Primary Examiner